

Amendments to the Claims

Please amend claims 1 and 29 as indicated in the listing of claims.

Please add new claims 33-38.

Claims 4-27 were previously canceled without prejudice.

The listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An apparatus for dispensing droplets of fluid comprising:
a non-constricted, fluid chamber having an opening therein for droplet dispensing, two piezoelectric actuators, and a driver, wherein:
the first actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof;
the second actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof, wherein said second actuator is further away from said opening than said first actuator; and
the driver is connected to substantially simultaneously actuate said first and second actuators so as to dispense fluid droplets from said fluid chamber,
wherein the driver is configured to produce a square voltage waveform that is slowly ramped downward from the peak voltage value to actuate the first and second actuators.
2. (Previously presented) The apparatus of Claim 29, wherein said driver is connected to actuate said second actuator prior to actuating said first actuator.
3. (Previously presented) The apparatus of Claim 1, wherein said first and said second actuators are more than approximately 10 mm away from said opening to allow said fluid chamber to extend into sample wells.

Claims 4-27 (Canceled)

28. (Previously presented) The apparatus of Claim 29, wherein said driver is connected to substantially simultaneously actuate said first and second actuators.

29. (Currently amended) An apparatus for dispensing droplets of fluid comprising:
a non-constricted, fluid chamber comprising a cylindrical capillary made of glass or quartz having an opening therein for droplet dispensing, two piezoelectric actuators, and a driver, wherein:

the first actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof;

the second actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof, wherein said second actuator is further away from said opening than said first actuator; and

the driver is connected to substantially simultaneously or sequentially actuate said first and second actuators so as to dispense fluid droplets from said fluid chamber,

wherein the driver is configured to produce a square voltage waveform that is slowly ramped downward from the peak voltage value to actuate the first and second actuators.

30. (Previously presented) The apparatus of Claim 29, wherein said first and said second actuators are more than approximately 10 mm away from said opening.

31. (Previously presented) The apparatus of Claim 29, wherein said cylindrical capillary includes a tapered end which terminates in said opening which forms a nozzle.

32. (Previously presented) The apparatus of Claim 31, wherein said first and said second actuators are spaced away from said nozzle to allow said cylindrical capillary to extend into sample wells.

33. (New) An apparatus for dispensing droplets of fluid comprising:

a non-constricted, fluid chamber comprising a cylindrical capillary having an opening therein for droplet dispensing, two piezoelectric actuators detachably disposed on the capillary, and a driver, wherein:

the first actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof;

the second actuator is mechanically coupled to said fluid chamber and configured to alter the volume thereof, wherein said second actuator is further away from said opening than said first actuator; and

the driver is connected to substantially simultaneously or sequentially actuate said first and second actuators so as to dispense fluid droplets from said fluid chamber,

wherein the driver is configured to produce a square voltage waveform that is slowly ramped downward from the peak voltage value to actuate the first and second actuators.

34. (New) The apparatus of Claim 33, wherein said driver is connected to actuate said second actuator prior to actuating said first actuator.

35. (New) The apparatus of Claim 33, wherein said driver is connected to substantially simultaneously actuate said first and second actuators.

36. (New) The apparatus of Claim 33, wherein said first and said second actuators are more than approximately 10 mm away from said opening.

37. (New) The apparatus of Claim 33, wherein said cylindrical capillary includes a tapered end which terminates in said opening which forms a nozzle.

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38. (New) The apparatus of Claim 37, wherein said first and said second actuators are spaced away from said nozzle to allow said cylindrical capillary to extend into sample wells.